

ABSTRACT OF THE INVENTION

A non-gated diode structure of a silicon-on-insulator, having a silicon-on-insulator substrate, a pair of isolating structures, a first type doped region and a second type doped region. The silicon-on-insulation substrate has a stack of a substrate, an insulation layer and a silicon layer. The isolating structures are located in the silicon layer to define a well region. The first and second type doped regions are located in the well and are adjacent to the isolating structures. Such a non-gated diode structure can be applied to an electrostatic discharge protection circuit to increase the electrostatic discharge protection voltage or current. In addition, a fabrication method of the non-gated diode is also introduced. This non-gated diode can be also fabricated in the general bulk CMOS process, and used in the on-chip ESD protection circuits.